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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/842,531	04/25/2001	Hyon T. Kim	5181-83600	7257

7590 09/15/2005

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EXAMINER

NGUYEN, HAI V

ART UNIT	PAPER NUMBER
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2142

DATE MAILED: 09/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/842,531

Applicant(s)

KIM, HYON T.

Examiner

Hai V. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-90 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-90 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. This Office Action is in response to the communication received on 07 July 2005.
2. Claims 1-90 are presented for examination.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-90 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Casper et al. U.S patent # 6,687,766 B1** in view of **Blumenau et al. U.S patent # 6,421,711 B1**.

5. As to claim 1, Casper, Method And Apparatus For A Fibre Channel Control Unit To execute Search Command Locally, discloses a method for handling fabric state changes, comprising:

receiving an event indicating a fabric state change for one or more host adapter ports (Casper, col. ⁴⁸47, lines ¹⁷⁻²⁹50-63); and however, Casper does not explicitly disclose dynamically changing the host system's fabric device configuration in response to said receiving an event, wherein said dynamically changing comprises bringing online or taking offline one or more fabric devices for the one or more host adapter ports for the host system. Thus, the artisan would have been motivated to look into the related networking arts for potential methods and apparatus for implementing dynamically changing the host system's fabric device configuration in response to said receiving an

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event, wherein said dynamically changing comprises bringing online or taking offline one or more fabric devices for the one or more host adapter ports for the host system. In the same field of endeavor, Blumenau, related Virtual Ports For data Transferring Of A Data Storage System, discloses dynamically changing the host system's fabric device configuration (*Blumenau, volume configuration database*) in response to said receiving an event, wherein said dynamically changing comprises bringing online (*Blumenau, mounting*) or taking offline (*Blumenau, unmounting*) one or more fabric devices (*Blumenau, logical volumes*) for the one or more host adapter ports for the host system (*Blumenau, the gatekeeper facility responds to the mount command by allocating free logical storage volumes to the specified LUNs, and creating an entry in the volumes access table or tables for the specified volume group name and the LUN to logical volume mappings, col. 33, line 10 – col. 34, line 50*).

Accordingly, it would have been obvious to one of ordinary skill in the networking art at the time the invention was made to have incorporated Blumenau's teachings of mounting or unmounting the devices for the host adapter ports (*Blumenau, col. 33, line 10 – col. 36, line 4*) with the teachings of Casper, for the *purpose of avoiding significant involvement of the system administrator in the situation of needing additional storage volumes or of no longer need storage volumes allocated to it* (*Blumenau, col. 33, lines 27-40*).

6. As to claim 2, Casper-Blumenau discloses, determining an event type for said event (*Casper, link failure; Blumenau, devices mounted or unmounted*).

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7. As to claim 3, Casper-Blumenau discloses, wherein if the event type indicates that one of the fabric host adapter ports has lost connectivity to the fabric, said dynamically changing comprises taking offline one or more fabric devices configured through the host adapter port that lost connectivity to the fabric (*Blumenau, col. 33, line 10 – col. 36, line 24*).

8. As to claim 4, Casper-Blumenau discloses, wherein said taking offline one or more fabric devices configured through the host adapter port that lost connectivity to the fabric comprises: reading a persistent repository that indicates which fabric devices are currently online for the host adapter port that lost connectivity to the fabric; and taking offline the fabric devices indicated by the persistent repository for the host adapter port that lost connectivity to the fabric (*Blumenau, col. 33, line 10 – col. 36, line 24*).

9. As to claim 5, Casper-Blumenau discloses, wherein said taking offline comprises disabling an operating system node for each of the one or more fabric devices being taken offline, wherein each operating system node provides a communication mechanism to a corresponding fabric device (*Blumenau, col. 34, lines 51-59*).

10. As to claim 6, Casper-Blumenau discloses, wherein if the event type indicates that one of the fabric host adapter ports has lost connectivity to the fabric, said dynamically changing comprises:

accessing a configuration file for the host adapter port that lost connectivity to the fabric to determine if fabric devices for that host adapter port are to be unconfigured if that host adapter port loses connectivity to the fabric; and if the configuration file indicates that fabric devices are to be unconfigured upon loss of connectivity to the

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fabric, taking offline one or more fabric devices configured through the host adapter port that lost connectivity to the fabric (*Blumenau, col. 33, line 10 – col. 36, line 24*).

11. Claim 7 has similar limitations of claim 4; therefore, it is rejected under the same rationale as in claim 4.

12. Claim 8 has similar limitations of claim 5; therefore, it is rejected under the same rationale as in claim 5.

13. As to claim 9, Casper-Blumenau discloses, further comprising, prior to said receiving an event: a host adapter driver for one of the one or more host adapter ports becoming inactive or detached; and generating the event indicating that one of the one or more host adapter ports has lost connectivity to the fabric (*Blumenau, col. 33, line 10 – col. 36, line 24*).

14. As to claim 10, Casper-Blumenau discloses, wherein said accessing a configuration file for the host adapter port that lost connectivity to the fabric comprises reading a user defined attribute in the configuration file, wherein the user-defined attribute indicates whether or not fabric devices for that host adapter port are to be unconfigured if that host adapter port loses connectivity to the fabric (*Blumenau, col. 33, line 10 – col. 36, line 24*).

15. As to claim 11, Casper-Blumenau discloses, wherein if the event type indicates that one of the fabric host adapter ports has acquired connectivity to the fabric, said dynamically changing comprises bringing online one or more fabric devices for the host adapter port that has acquired connectivity to the fabric (*Blumenau, col. 33, line 10 – col. 36, line 24*).

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16. As to claim 12, Casper-Blumenau discloses, wherein said bringing online one or more fabric devices for the host adapter port that has acquired connectivity to the fabric comprises: reading a persistent repository (*Blumenau, volume access table*) that indicates which fabric devices were previously online for the host adapter port that has acquired connectivity to the fabric; and bringing online the fabric devices indicated by the persistent repository for the host adapter port that has acquired connectivity to the fabric (*Blumenau, col. 33, line 10 – col. 36, line 24*).

17. As to claim 13, Casper-Blumenau discloses, wherein said bringing online comprises creating an operating system node for each of the one or more fabric devices being brought online, wherein each operating system node provides a communication mechanism to a corresponding fabric device (*Blumenau, col. 33, line 10 – col. 36, line 24*).

18. As to claim 14, Casper-Blumenau discloses, wherein if the event type indicates that one of the fabric host adapter ports has acquired connectivity to the fabric, said dynamically changing comprises: accessing a configuration file for the host adapter port that has acquired connectivity to the fabric to determine if fabric devices for that host adapter port are to be configured if that host adapter port acquires connectivity to the fabric; and if the configuration file indicates that fabric devices are to be configured upon that host adapter port's connectivity to the fabric, bringing online one or more fabric devices for that host adapter port that has acquired connectivity to the fabric (*Blumenau, col. 33, line 10 – col. 36, line 24*).

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19. Claim 15 has similar limitations of claim 12; therefore, it is rejected under the same rationale as in claim 12.

20. Claim 16 has similar limitations of claim 13; therefore, it is rejected under the same rationale as in claim 13.

21. As to claim 17, Casper-Blumenau discloses, further comprising, prior to said receiving an event: a host adapter driver for one of the one or more host adapter ports becoming active or attached; and generating the event indicating that one of the one or more host adapter ports has acquired connectivity to the fabric (*Blumenau, col. 33, line 10 – col. 36, line 24*).

22. As to claim 18, Casper-Blumenau discloses, wherein said accessing a configuration file for the host adapter port that has acquired connectivity to the fabric comprises reading a user-defined attribute in the configuration file, wherein the user-defined attribute indicates whether or not fabric devices for that host adapter port are to be configured if that host adapter port acquires connectivity to the fabric (*Blumenau, col. 33, line 10 – col. 36, line 24*).

23. As to claim 19, Casper-Blumenau discloses, wherein if the event type indicates that a new fabric device has been connected to the fabric, said dynamically changing comprises bringing online the new fabric device for one of the one or more host adapter ports (*Blumenau, new volume available on the adapter port, col. 33, line 10 – col. 36, line 24*).

24. As to claim 20, Casper-Blumenau discloses, wherein said bringing online comprises creating an operating system node (*Blumenau, a host*) for the new fabric

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device (*Blumenau, an additional volume*) being brought online, wherein the operating system node provides a communication mechanism to the new fabric device (*Blumenau, col. 33, line 10 – col. 36, line 24*).

25. As to claim 21, Casper-Blumenau discloses, wherein said bringing online the new fabric device comprises updating a persistent repository to indicate that the new fabric device is online for the host adapter port (*Blumenau, col. 13, line 57 – col. 14, line 104*).

26. As to claim 22, Casper-Blumenau discloses, wherein if the event type indicates that a new fabric device has been connected to the fabric, said dynamically changing comprises: accessing a configuration file for one of the one or more host adapter ports to determine if newly connected fabric devices for that host adapter port are to be dynamically configured; and if the configuration file indicates newly connected fabric devices are to be dynamically configured, bringing online the new fabric device for that host adapter port (*Blumenau, col. 33, line 10 – col. 36, line 24*).

27. Claim 23 has similar limitations of claim 20; therefore, it is rejected under the same rationale as in claim 20.

28. Claim 24 has similar limitations of claim 21; therefore, it is rejected under the same rationale as in claim 21.

29. As to claim 25, Casper-Blumenau discloses, prior to said receiving an event: connecting the fabric device to the fabric (*Blumenau, allocating volume to the storage subsystem, col. 33, line 10 – col. 36, line 24*); and a fabric driver generating the event

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indicating that the new fabric device has been connected to the fabric (*Blumenau, col. 33, line 10 – col. 36, line 24*).

30. As to claim 26, Casper-Blumenau discloses, wherein said accessing a configuration file comprises reading a user-defined attribute in the configuration file, wherein the user define attribute indicates whether or not newly connected fabric devices for that host adapter port are to be dynamically configured upon detection (*Blumenau, col. 33, line 10 – col. 36, line 24*).

31. As to claim 27, Casper-Blumenau discloses, wherein the one or more host adapter ports comprise Fibre Channel host adapter ports (*Blumenau, Fig. 1; col. 33, line 10 – col. 36, line 24*).

32. As to claim 28, Casper-Blumenau discloses, wherein the fabric comprises a Fibre Channel switched fabric comprising a plurality of Fibre Channel switches (*Blumenau, Fig. 1; col. 33, line 10 – col. 36, line 24*).

33. As to claim 29, Casper-Blumenau discloses, wherein the fabric is part of a storage area network (SAN), and wherein the fabric devices comprise storage devices (*Blumenau, Fig. 1; col. 33, line 10 – col. 36, line 24*).

34. As to claim 30, Casper-Blumenau discloses, wherein said dynamically changing comprises verifying the one or more, fabric devices before bringing the one or more fabric devices online, wherein said verifying comprises accessing a fabric name server to determine if the one or more fabric devices are currently connected to the fabric (*Blumenau, Fig. 1; col. 36, line 26 – col. 37, line 53*).

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35. Claim 31 is corresponding system claim of claim 1; therefore, it is rejected under the same rationale as in claim 1.

36. Claims 32-60 are similar limitations of claims 2-30; therefore, they are rejected under the same rationale as in claims 2-30.

37. Claim 61 is corresponding computer readable medium claim of claim 1; therefore, it is rejected under the same rationale as in claim 1.

38. Claims 62-90 are similar limitations of claims 2-30; therefore, they are rejected under the same rationale as in claims 2-30.

39. Further references of interest are cited on Form PTO-892, which is an attachment to this action.

Response to Arguments

40. Applicant's arguments filed on 07 July 2005 have been fully considered but they are not persuasive.

41. In the remark, Applicant argued in substance that:

Point (A), the prior art do not discloses that, "fabric state change events" in independent claims.

As to point (A), Casper discloses that, *"An additional aspect of this invention in configurations involving a switch (fabric) provides a control unit the means to detect a remote FC-PH link failure, or a link failure which occurs on a link to a channel which is connected to another F_Port on the fabric. A remote link failure at a channel is detected when the control unit receives either 1) a "registered state change notification" extended link service command from the fabric controller which indicates an event has occurred*

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at the channel, or 2) an N_Port login command from the channel. Either of these events

indicates that a link failure or other problem may have caused a channel to remove a

logical path which existed on the link between the channel and the fabric (col. 47, lines

17-29 48, lines 50-63). Blumenau also discloses that, "The Fibre Channel specifications provide a

mechanism for the network to automatically detect certain changes of state which may

indicate that the configuration of the system has changed. For example, idle signals are

transmitted over the links to enable detection of link failure. Frame transmission errors

are detected by cyclic redundancy checks and sequence identification numbers in the

frames. When transmission over a link is restored after detection of a link failure, a

fabric may require the ports connected by the link to login for reassignment of temporary

IDs to the ports. A fabric may also support a "state change notification" process in which

ports having operational links to the fabric may request to be notified by the fabric when

a state change is detected (col. 11, lines 42-55).

Conclusion

42. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai V. Nguyen whose telephone number is 571-272-3901. The examiner can normally be reached on 6:00-3:30 Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on 571-272-3868. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hai V. Nguyen
Examiner
Art Unit 2142

HN

Kamini Shah
KAMINI SHAH
PRIMARY EXAMINER *KS*